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ABSTRACT

A 2-year investigation was conducted of Connecticut's high school medical careers programs and the career opportunities available to students, particularly females, who have graduated from them. Research conducted in two phases in four communities involved the following activities: site visits of high school medical careers programs and student placements at hospitals and nursing homes; interviews of administrators, students, employment officers, and guidance counselors; focus groups of all stakeholders; observations; and exploration of the options and requirements of higher-level medical careers. The analysis yielded four major findings: (1) graduates of medical careers programs often lack the academic skills, particularly in science and mathematics, to enter higher-level nursing and other medical fields; (2) Licensed Practical Nurse (LPN) training offers an alternative to higher-level nursing with fewer academic requirements; (3) certified nursing assistant programs focus on specific job skills needed for immediate employment rather than career exploration in a variety of different medical fields; and (4) despite students' career goals, many staff do not expect them to move beyond entry-level medical positions. Recommendations were made for more rigorous high school curriculum, particularly in mathematics and science in the medical careers program, and broader work experience and career information for students. (KC)

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A REPORT OF THE VOCATIONAL EQUITY RESEARCH, TRAINING AND EVALUATION CENTER

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LIMITED CAREER PATHWAYS: OCCUPATIONAL CHALLENGES FOR WOMEN AND GIRLS IN THE MEDICAL FIELD

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EXECUTIVE SUMMARY

By Suzanne Silverman, Ph.D. and Alice Pritchard, Ph.D.

June 1996

I. INTRODUCTION

High school medical careers programs are an important part of an evolving Connecticut School-to-Career system, providing work-based learning in medical facilities. The vision for the school-to-career system is that all students in the state will have the opportunity to connect the learning that takes place within school walls to the demands of higher education and to the full range of careers offered by the Connecticut economy.

School-to-career programs, must, therefore aim to do more than qualify students for their first full-time job. Programs must also assure that students, particularly females, acquire the knowledge and skills necessary to change jobs, make occupational advancements and continue learning throughout their working lives. Programs in areas traditionally dominated by women must ensure that there are practical pathways available to high-wage, high-skill jobs.

While jobs in the medical field are growing, medical careers programs can only fulfill the school-to-career vision if they provide the kind of training female students need to move beyond entry-level jobs. This is particularly difficult because of the gender-based occupational hierarchy characteristic of the medical industry. This hierarchy provides men with greater degrees of autonomy in health practice and decision-making authority, as well as higher wages.

Under this system, the chances for job mobility for women are greatly restricted. The medical industry has a history of erecting employment barriers between different levels through education, certification and licensing requirements. The internal job ladders which would allow entry-level workers to move up are not available in the medical industry. Mobility can only be achieved by gaining advanced skills and pursuing higher education.

This report is a summary of the findings of a two-year investigation of Connecticut's education and training programs in the medical field and the career opportunities available to students, particularly females, who have graduated from high school medical careers programs. It examines the findings of the research in terms of gender equity and school-to-career opportunities and suggests strategies to improve the chances for female graduates to secure high-wage, high-skill employment.

II. METHODOLOGY

Our research strategy involved choosing a sample of four diverse communities across the state. In each of these communities, we visited school programs, higher education institutions and employers in the medical field. For Phase I, we identified the four case studies and visited the medical careers programs in their comprehensive high schools. We interviewed administrators, teachers and guidance counselors and observed medical

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careers classes. We conducted focus group interviews with students and observed students' work experience in hospitals and nursing homes.

For Phase II, we looked at the options available to students in medical careers programs after graduation from high school. We analyzed whether graduates of high school programs were being prepared to go on to further training and higher qualifications. Are there practical pathways for these graduates to gain the higher qualifications they need to secure high-wage jobs in the health industry? What are the obstacles facing graduates and how can high school programs help to overcome them?

In order to answer these questions, we visited community-technical colleges, vocational-technical schools and hospitals in the four sample communities. We interviewed administrators, teachers, students, employment officers and health professionals.

III. RESEARCH FINDINGS

Our research asked two basic questions: What kind of training is offered by high school medical careers programs? and, What are the prospects for graduates, particularly females, to pursue advanced degrees and eventually secure high-wage jobs in the medical industry? This analysis yielded four major research findings:

Finding One: Admission to college programs is very competitive. High school graduates and adult students often lack the necessary academic skills, particularly in math and science, to enter higher-level nursing and other medical fields.

The major pathways to high-wage, high-skill employment in the medical industry are through college programs. Since very few graduates of high school medical careers programs will go straight to four-year BSN programs, the two-year RN programs offered through community-technical colleges are the most likely options.

To be admitted to the RN program, students must have a high school diploma or General Equivalency Degree (GED) and they must have taken high school-level classes in basic English composition, biology and chemistry with labs, and math. Applicants can apply to RN programs straight out of high school, provided they have good SAT scores and a good high school record, but there are few such applicants.

While these may be the only requirements on paper, in practice students have nearly all completed the academic classes required for the associate's degree before applying to the nursing program. Because the pool of applicants is large, colleges can be quite demanding and often select students who have already completed these requirements and have demonstrated that they can do well in college-level classes. Nearly all the students we interviewed said they had spent from one to three years taking their college-level academic requirements before starting the nursing part of the program.

Before applicants can start taking college-level courses, however, they need to have the necessary high school-level skills. Community-technical colleges generally give entering students placement tests to see whether their high school preparation is adequate. Many high school graduates do not have the required knowledge and must take remedial classes. An administrator in one community-technical college, who works with high schools to develop tech prep programs, estimated that about 63% of students coming into the college need some remediation work in either math, science, reading or writing.

Many of the high school programs we examined did not provide the academic preparation applicants would need to go on to further qualifications. Some of the academic classes designed specifically for medical careers students did not include the algebra or geometry which students would need to take the SATs or apply to RN programs. The chemistry and biology classes did not cover the material required to pass placement tests in community-technical colleges.

Admission to college programs in other medical areas, such as EMT-paramedics, respiratory therapists, radiologic technologists, physical therapy assistants, phlebotomists and medical lab technicians, also requires applicants to have proven their ability to handle college-level work, although they were not all as competitive as RN programs. All of these programs required high school diplomas and applicants had to take placement exams to determine the level of their academic preparation. As in the case of nursing programs, if applicants did not have the necessary high school-level skills to take college courses, they had to take remedial classes or get tutoring before applying to the program.

Because so few programs are offered, the training course for physical therapy assistants is very competitive. In order to be qualified for admission, applicants must have passed the placement test for high school biology and chemistry (with labs) and 2nd year algebra. The application process considers grades, references and previous experience. Because most students need to work part-time and the competition is so tough, in practice many successful applicants will have already completed their academic requirements before starting the program.

The competition for admission to the radiologic technologist program is not as tough as for physical therapy assistants, but it also requires applicants to have passed the placement test for high school biology with a lab and math, including 2nd year algebra. Passing the math requirement can be a real stumbling block for some applicants, particularly if they did not acquire good math skills in high school.

While most students in these medical programs were not right out of high school, the kind of academic preparation and career information they got in high school was very important for their later careers. Many students told us they would have been better off with the chance to explore a variety of medical careers while still in high school. The chance to shadow various departments in the hospital and information about what kind of training programs are available would have been very valuable to them. Students who knew they were interested in medical careers did not necessarily want to take programs that concentrated only on nurse's aide training and many felt it more important to take college-preparatory math and science classes.

Finding Two: Although job opportunities are limited, Licensed Practical Nurse (LPN) training offers an alternative to higher-level nursing with fewer academic requirements.

Considering the difficulties of getting into RN programs and the desire to move beyond CNA training, the availability of other options for nursing training is important for graduates of medical careers programs. The major option for higher-level nursing other than RN training is Licensed Practical Nurse (LPN) training available for adults through vocational-technical schools. LPN programs are very popular since they do not require the kind of academic preparation necessary for community-technical college programs. All applicants must have a high school diploma or GED and pass an entrance examination which tests basic reading and math skills. The math portion of the test includes beginning algebra (ratios and proportions), but it is possible to pass it without having had an algebra class.

Since they provide a valuable alternative to RN training, LPN programs are very popular and admission is competitive. The major stumbling block for most applicants is the entrance exam, with only 20-50% of applicants passing and going on to the next stage. If they did not acquire the necessary basic skills in reading and math in high school, applicants will need tutoring or remedial classes before taking the exam. Some of the schools offer extension classes designed to prepare students to take this exam and many will start preparing up to a year in advance of taking the test.

On the other hand, there is no requirement for biology and chemistry with a lab, as there is for the RN program, and applicants do not have to prove their ability to do college-level classes. Graduates of high school medical careers programs should be able to pass the entrance examination with only minimal preparation for the algebra section of the math test.

The LPN program is clearly attractive to students whose strength is not academic work. According to teaching staff, LPN programs produce good practical nurses with strong clinical and hands-on skills. They are trained to assess patients who are less than critical and call in an RN or doctor if needed.

The job market for LPNs, however, is contracting and there are limited opportunities for full-time, high-wage employment with good benefits. The chance to move up to better nursing jobs requires LPNs to go on to get their RNs, or preferably, a BSN. While there is an articulation agreement for LPN to RN, it doesn't always work out well in practice. There are not that many programs available and they limit the number of LPNs they will accept. RN programs require students to be able to do college-level academic work and LPN graduates have not been required to take the science and math classes that nearly all RN students completed before being accepted into the nursing program.

The head of one RN program we visited said that while the articulation agreement and bridge program does provide a pathway from LPN to RN, many LPN applicants do not do well in the admissions process because of their academic record. They still have to take science classes and do well enough in them to compete with other applicants and this can be a sticking point for them.

Teachers in the LPN programs admitted that if a student is interested in getting an RN, they would be better off not going for an LPN first. On the other hand, the LPN program is an affordable way to get started in nursing and the only practical option for students who are not prepared to spend up to three years taking college-level academic classes before starting an RN program. After finishing the LPN program, however, graduates will still need to do that academic work before they have the opportunity for higher-level nursing jobs.

Finding Three: The clinical component of high school programs provides valuable work experience. However, CNA programs tend to focus on specific job skills needed for immediate employment rather than career exploration in a variety of different medical fields.

For all the programs we examined, the work experience component was crucial. It provided students with the chance to see the real world-of-work while learning important technical skills. Most of the programs included nurse's aide training, which required students to spend their time in the hospitals and nursing homes performing the kind of duties which are required of nurse's aides. Where work experience was restricted to nurse's aide training, students tended to remain in particular wards in the hospital, usually the geriatric wards.

While most of the programs included such nurse's aide training, many either required or gave students the option of obtaining further clinical experience. Where a general health occupations class was provided, students had the opportunity to visit many different departments in the hospital. In some cases, students rotated throughout the various departments, shadowing health care workers. In other cases, students spent most of their clinical time in one or two departments of their own choice. Where students got clinical experience beyond nurse's aide, they were able to see the kind of jobs available in a wide range of medical areas, such as physical therapy in rehabilitation wards and x-ray, ultra sound and lab technicians. The nature of their clinical experience in such departments, however, was different from what they did as part of nurse's aide training.

While high school students can make beds and bathe patients on their own, they cannot actually "do" much in the rehabilitation ward or the x-ray room. They can observe what therapists and technicians are doing and they can help out with errands, such as answering the phone, but they are limited in the number of specific job skills they can learn. In this kind of clinical experience, the idea is not to train the students in specific skills, but give them the chance to explore various career possibilities.

In designing work experience programs, there will always be some tension between the goals of giving students the chance to explore careers and providing them with specific job skills. In the case of nurse's aide training,

the experience is focused more on job skills than exploration. Students can leave high school and go directly into a job as a nurse's aide with a very clear sense of the occupation and its requirements.

If their experience is limited to nurse's aide training, however, students may not gain an understanding of the range of medical careers available to them. Most of the students, when asked, were unable to name the various therapists and technicians and were not aware of the kind of training or job prospects available outside of nursing.

Where programs see their goals in terms of immediate placement of students into jobs after graduation, there is more concern with work experience providing specific job skills. In a busy geriatric ward, students can provide very useful assistance to medical staff by making beds, bathing patients and running errands.

For the hospitals, what makes graduates of these high school programs attractive is the specific skills that prepare them for immediate employment. Even when hospitals see an interest in having high school students learn about various occupations beyond nursing, they tend to be more interested in having them learn specific job skills than explore careers. The kind of jobs which require these specific skills will be entry-level jobs as technical or therapeutic aides at low salary scales with no promotion prospects without further education.

All the programs stressed that the work experience provided students with general skills which would be valuable to them whether they worked in the medical field or not. Because the students worked in medical facilities, they had to maintain professional standards of behavior and dress and take responsibilities not expected of most high school students.

Although they may have problems academically, graduates of medical careers programs will have obtained valuable work experience. Medical experience is considered favorably in ranking applicants for admission to RN programs and the students we interviewed said that it was very helpful in successfully completing the programs.

Finding Four: Despite students' career goals, many staff do not expect them to move beyond entry-level medical positions.

Most of the students in the medical careers programs we visited will finish high school with a certified nurse's aide (CNA) certificate and real work experience as nurse's aides. The chance to find a job directly out of high school paying somewhere from $8 to $12 an hour was generally seen as a real advantage to these students. It was striking, however, that not one of the students we interviewed said that nurse's aide was their final career goal.

Many of the students we interviewed did not have the kind of financial support from their families that they needed to go to college full-time after graduation from high school. Many planned to work as a nurse's aide, some part-time while enrolling in some kind of college program immediately, others full-time for at least a while after graduation.

In programs which concentrated on nurse's aide training, the classes were overwhelmingly female and most students were interested in nursing as a career. A few girls expressed interest in becoming physical therapists or medical assistants. While they often planned to work as nurse's aides, most were hoping to go on to become registered nurses and were aware of various possible pathways, including community-technical colleges and nursing schools.

Some of the students in the nurse's aide classes planned to work full-time for a while before going back to college for advanced degrees. While they did not expect to remain nurse's aides all their lives, they wanted to earn some money and work full-time after graduation.

In programs which offered a broader range of medical classes, fewer students were interested only in nursing and there were more boys enrolled. Students in general health occupations classes, EMT and lab technician classes often did not expect to work as nurse's aides after high school, even in the programs where they would be eligible to take the CNA examination upon graduation. Some students in these programs were thinking about careers in the medical field, but many were interested in other fields and had not made up their minds about their career goals.

Although none of the students we interviewed said that nurse's aide was their final career goal, the teachers all acknowledged that some proportion of their students would go directly into the job market as nurse's aides and would be unlikely to obtain any higher qualifications.

The medical careers programs we visited varied in terms of the expectations of administrators and guidance counselors. Some programs followed the more conventional distinction between vocational and academic programs, clearly viewing the program as preparation for employment appropriate only for students who are not expected to go to college.

Other program administrators expected at least some portion of their graduates to eventually go on to further training programs. They objected to the characterization of their programs as "dead- end" and felt that community-technical colleges could act as a "bridge" to higher-level jobs for their students. But they also acknowledged that with tough competition for admission to RN programs, many students would find this a difficult pathway.

IV. IMPLICATIONS FOR SCHOOL-TO-CAREER PROGRAMS AND GENDER EQUITY

The goal of providing students with a full range of opportunities for employment and further education is crucial for applied education programs which are moving toward the future as part of an evolving school-to-career system. In program areas traditionally dominated by women, gender equity requires that female participants receive the kind of training they need to move beyond entry-level jobs.

The kind of medical careers program most likely to meet these goals would be a broad general program not limited to nurse's aide training, which would provide work experience or shadowing opportunities in a range of different medical areas. The work experience component would not be focused on the skills needed for immediate employment after high school, but would provide general knowledge of medical terminology and procedures and the kind of core skills needed for a variety of medical jobs.

Such a program would also require students to learn about economic realities, so that they consider the kind of income required to support a family and the consequences of choosing different occupations. While students may not be mature enough in high school to decide everything about their future, the more information they have about specific careers and the more they have learned about the consequences of choosing different careers, the better equipped they will be to make decisions after graduation.

Finally, and perhaps most importantly, students need to have the necessary academic skills to pursue their career goals. If high school programs give students the kind of academic preparation they need to pass college placement exams for high school-level skills, they will not need to spend up to two years taking remedial classes. Specifically, programs must promote girls' participation in higher-level math and science courses and help them to build confidence in their abilities in these areas.

The findings of this research project demonstrate how long and competitive the path to further qualifications can be for medical workers. If graduates of high school programs have to spend extra years on remedial classes to cover what they should have learned in high school, they are less likely to succeed in following the available pathways to high-wage, high-skill employment.

V. RECOMMENDATIONS

Considering the implications of our findings, we feel that several crucial issues need to be addressed.

Academic Preparation

Contrary to the old assumption that students in applied education programs do not need strong academic preparation because they will not be going to college, medical careers programs should assume that all students interested in this field will need further education.

While students may take "Allied Health Math" or "Allied Health Science", these classes should cover the basic skills required to pass college entrance examinations, even if they are taught through more "hands-on" methods. In particular, students need science classes with labs and must cover algebra in math classes.

In addition, schools must promote girls' participation in math and science and work to build their confidence in these areas. Special attention to math anxiety should be a priority. If girls continue to opt out of higher level math and science their future occupational opportunities will be limited.

Curriculum

Considering the range of medical occupations available, students in medical careers programs need to acquire the core skills which will equip them to go on to further education and training in different areas. While these skills certainly include nursing, high school programs do not have to be limited to CNA training. Broader programs could include a general class covering such subjects as medical terminology and infection control, followed by more specific classes in a range of different areas including nursing, EMT, EKG, medical lab or medical office skills.

Broader programs are more likely to attract a variety of students rather than those interested strictly in nursing. Such programs are more likely to attract boys and non-minorities which results in a more balanced enrollment. In addition, broader programs expose female students to a range of medical occupations other than nursing. Programs should analyze their curriculum for gender stereotypes and actively promote nontraditional options for males and females in the medical field.

Work Experience

The work experience component of medical careers programs gives students the opportunity to learn valuable skills such as professional behavior and responsibility and the chance to be exposed to the world-of-work. If their work experience is narrowly focused on job skills for immediate employment, however, students may not learn about the possibilities for higher-level medical careers.

Medical careers programs should not limit work experience to nurse's aide training on geriatric wards or in nursing homes. They should all provide shadowing experiences for students in as many different medical areas as possible. These programs can provide training in a set of core skills needed for a variety of medical careers.

Career Information

With all the recent changes in the medical industry, students in high school programs need detailed up-to-date information about the kind of careers which are available and the kind of qualifications they require. They need to know the salary and promotion prospects of different careers. They need to know about the training programs which are available to pursue these careers and the requirements for admission.

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Inviting medical professionals into the classroom to talk about their jobs is one way of providing this kind of information. Whenever possible, schools should invite role models who are in nontraditional careers for their gender. Having high school students visit community-technical colleges or inviting staff from colleges and universities to the high school is another source of career information. Job shadowing opportunities can also provide this kind of information to students.

Students also need to be taught about economic realities and the consequences and benefits of choosing different careers. This kind of training might involve workshops or projects for students to explore the difficulties of living on a budget or the cost of finding a place to live. Students need to be exposed to the kind of financial and occupational decisions they will face after graduation from high school. Career information becomes more relevant for students when it is placed in a personal context. This activity can be particularly useful for females who may not have compared the financial benefits of nontraditional to traditional employment in the medical field.

VI. CONCLUSIONS

Analyzing the results of our study of medical careers programs, we find that while there are pathways available to students to go beyond entry-level health occupations, there are also many obstacles that make it difficult for them to eventually secure high-wage, high-skill jobs.

A superficial analysis might conclude that further training is a practical pathway in the long term, after participants have gotten some medical work experience and are more mature. Most graduates do not plan to go directly to further training and expect to work as CNAs. If they are interested in going on, they can take college classes part-time in preparation for admission to medical programs.

A deeper analysis, however, reveals that the chances for successfully following this pathway are considerably reduced by the kind of academic preparation which students get in high school medical careers programs. Since science and math are given particular attention, high school graduates who have not attained the necessary skills in these subjects are at a major disadvantage. Our examination of high school programs revealed that the math and science classes often did not prepare students for college level work.

The work experience which students get through medical careers programs can be very important for graduates. As CNAs on graduation, they can find jobs in medical facilities which can both support them financially and give them practical experience which will help them in medical training programs. Medical careers programs which offer substantial medical experience provide students with important practical skills which they will need to pursue their career goals. However, if their career goals involve further education, it seems clear that their academic preparation is equally important.

High school medical careers programs need to examine how they can help students gain the skills necessary to go beyond entry-level jobs. Participants in high school programs need detailed career information about the whole range of medical occupations and the kind of training required. In order for the school-to-career system to become a reality, **all** students must be given the opportunity and encouragement to pursue their interests in both traditional and nontraditional fields for their gender. If schools make gender equity in their school-to-career programs a priority, the goal of reaching **all** students can be realized.

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